

1021.43049X00  
Serial No. 10/644,022  
Office Action dated June 30, 2006

**RECEIVED**  
**CENTRAL FAX CENTER**

SEP 29 2006

**Amendments to the Specification:**

**Page 18** – Please amend the fifth paragraph bridging to page 19 as follows:

Many attempts to further improve recording density have been attempted in recent years by purposely applying longitudinal components to the magnetic recording field and magnetic ~~anisotropy~~ anisotropy of the medium recording layer have been made. However, since perpendicular components are dominant in comparison with longitudinal components in the magnetic recording field, this kind of method is also usually grouped under the perpendicular recording. Also, methods to add longitudinal magnetic components to the recording field by contriving means such as auxiliary poles or write elements whose structure includes an improved recording field gradient are being evaluated. However these methods are no different from the basic function of magnetizing the medium using the magnetic field output from the medium surface that faces the main pole so that these methods may also be referred to as perpendicular thin film magnetic recording heads. The present method is also applicable and effective on these magnetic recording systems or write elements.

**Page 23** – Please amend the third paragraph bridging to page 24 as follows:

The nonmagnetic layer 64 and the underlayer 62 that ~~serve~~ serve to divide the high Bs layers should be at least within 2.2T and smaller than the Bs of the high Bs layer and preferably should be a material of 2.0T with small crystalline magnetic ~~anisotropy~~ anisotropy. Here, nickel-chromium (Ni-Cr) alloy is generally utilized for non-magnetic characteristics at room temperature, however if the crystalline structure is a face centered cubic structure then the same results can be obtained even when low Bs materials with magnetic elements such as nickel-iron, or non-

1021.43049X00  
Serial No. 10/644,022  
Office Action dated June 30, 2006

magnetic materials such as Ni-Fe-Cr are included. The same satisfactory effects can be obtained when selected from the above group of materials, whether the underlayer 62 and intermediate layer 64 are made from the same materials or made from different materials.

**Page 27** – Please amend the first paragraph as follows:

FIG. 15 is a cross sectional view showing the structure of this type of embodiment. Here, a film thickness difference of 20 percent was made between a first high Bs layer (odd numbered high Bs layer from the substrate side) 63 and a second high Bs layer (even numbered high Bs layers from the substrate side) 63' and these layers then alternately formed in a laminated structure. By utilizing this structure, an identical magnetic state can be constantly achieved for each magnetostatic ~~exchange~~ coupling by high Bs layers in a remanent magnet state. Consequently, the same characteristics appear for  $10^{10}$  cycles of write operations which is an extremely large number, showing that the stable operation of the magnetic disk device has been improved.